

# Chemical Engineer

## **What Do They Do?**

Chemical Engineers work in all kinds of industries that make or use chemicals. They work to solve problems of chemical, biochemical and physical changes that come up in the production and use of chemicals such as gasoline, synthetic rubber, plastics, composite materials, detergents, cement, paper and other manufactured goods which may use these types of products. Some work in healthcare, biotechnology or business service industries, to name a few.

They design chemical plant equipment, research and test new and improved chemical manufacturing processes, and develop safety procedures. Chemical engineers make recommendations about the location and design of new plants or modifications to existing plants. They may specialize in processes such as oxidation, or the development of a certain product such as fertilizers and pesticides or automotive plastics or chlorine bleach. Many Chemical Engineers work in fields related to solving environmental, sociological and biological problems such as pollution control or hazardous waste management.

Chemical Engineers generally work as part of a team with scientists and other engineers in modern laboratories in manufacturing industries. Because their duties overlap into many different fields, Chemical Engineers must be knowledgeable in chemistry, physics, and mechanical and electrical engineering, as well as in their own specialty.

## **What Do I Have To Do To Be One?**

Some courses to take in high school to prepare you for this occupation include as many math and science courses as possible including Computer Science, Trigonometry, Calculus, Chemistry, and Physics. Some other courses that would be helpful include Communications, English, and Technical Drawing.

To be a Chemical Engineer, you should like activities that are scientific, technical and require a creative imagination. You should be able to communicate your ideas well in speech and writing. You should be analytical, innovative, and good at solving problems.

A Bachelor of Science degree in chemical engineering is the most common entry-level requirement. A master's degree or higher is required for some research, teaching, consulting, and managerial positions.

## **How Much Do They Make?**

Salaries of Chemical Engineers depend on their educational background, work experience, area of specialization and level of responsibility. The salary may also depend on the type, size and location of the company where the Chemical Engineer works.

Nationally, the median yearly salary of all Chemical Engineers was \$65,000 in 2003. In early 2004, most experienced professional engineers earned between \$76,029 and \$119,074. Recent Chemical Engineering graduates of a large Michigan university were offered average annual starting salaries of \$51,715 for a bachelor's degree. Chemical Engineers usually start as junior or assistant engineers. As they gain experience, they usually advance to a position of greater responsibility.

## **What Can I Expect From the Job Market?**

Nationally, there were about 33,000 Chemical Engineering jobs in 2002. Employment is expected to show little or no change through the year 2012. About 925 Chemical Engineers are employed in Michigan. Most of them work in or near urban areas and large cities. Employment of Chemical Engineers in Michigan is expected to increase more slowly than the average for all occupations through the year 2010. Much of the projected growth in employment of Chemical Engineers will be in non-manufacturing industries, especially services industries.

For more information about this occupation, click here: [Chemical Engineer Career Information](#)

## **Factoid**

Chemical Engineers solve problems that involve using or making chemicals. They work in all kinds of industries such as manufacturing, healthcare, pulp and paper, gasoline, food processing, and environmental health and safety. Chemical Engineers use their knowledge of chemistry, physics and math to find the best way to make better plastics, paints, fuels, medicines and all other kinds of chemicals. They also find ways to reduce pollution and hazardous waste and design chemical plant equipment.

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